Spring 2020

Redesign of Math 1601 Modeling with Calculus

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CSU – San Bernardino
Main Campus
Fall 2020

Mathematics 1601 (Section ?)
Modeling with Calculus
Room ?????? MWF ???????

Instructor: ???
E-mail: ???
Voicemail: ???

Office: ???
Office Hours: ???
College Website: www.csub.edu

Text: Applied Calculus, (6th Edition) by Hughes, Hallet, et al. ISBN 978-1-119-39935-3

Supplies: Textbook with online code, notebook with paper, graph paper, pencils, ruler, eraser, scientific calculator, device (phone, laptop) with internet access, Geogebra (app or website)

Course Description: Survey of differential and integral calculus with emphasis on conceptual understanding and modeling the world around us. Use of mathematical technologies for visualization, experimentation, and problem solving. Not a substitute for any course in the calculus sequence MATH 2210, MATH 2220, MATH 2310, MATH 2320. Formerly offered as MATH 192, students may not receive credit for both. Satisfies the GE Category B4.

Prerequisites: You should have a knowledge of functions consistent with the material taught in one of the following courses.
Quarter System: Passing score on the ELM or Math 110
Semester System: Math 1301 or 1303 or 1401 or 1402

Course Objectives: The following topics will be covered:

1. Algebraic limits and continuity.
2. Differentiation using limits and difference quotients.
3. Differentiation including the power, sum-difference, product, quotient and chain rules.
4. Higher order derivatives.
5. Classify maximum and minimum values of a function using first and second derivatives.
6. Use derivatives to find absolute maximums and absolute minimums.
7. Business and economic applications of maximum-minimum problems.
8. Exponential and logarithmic functions.
9. Antiderivatives and antiderivatives as areas.
10. Definite integrals, areas and properties.

GENERAL EDUCATION LEARNING OUTCOMES:

1.0 Learning How to Learn / Metacognition - Develop awareness of their learning processes, becoming reflective, self-directed learners who are able to apply and adapt their processes of learning in new contexts.

3.4 Quantitative Reasoning

1. Interpret situations and problems mathematically, in terms of their quantities and relationships. This includes identifying quantities, variables, and constraints of the situation, representing these mathematically, and making appropriate assumptions.
2. Reason about and analyze mathematical relationships in contextual situations. This includes identifying relationships among the variables, interpreting the meaning of the relationships in the context, and evaluating the reasonableness of these relationships in the context.
3. Develop logical arguments about quantities in context, supported by (quantitative) evidence. This includes interpreting the mathematical relationships in terms of the context, setting up and carrying out appropriate computations, interpreting the results in terms of the situation, and evaluating their reasonableness in the context.
4. Critique logical arguments about quantities in context. This includes developing an understanding of the argument, analyzing its logical construction, and evaluating the validity of the assumptions and conclusions of the argument in relation to the context
5. Communicate ideas and arguments orally and in writing, using mathematical language and representations such as graphs, symbols, and geometric figures.

3.5 Technological Literacy

1. Analyze the ways in which technology and society shape each other.
2. Analyze information about the benefits, risks, costs, and trade offs of technology in a systematic way.
3. Searches systematically for the sources of problems to novel problems associated with chosen technologies – trouble shooting.
4. Analyzes and selects appropriate technological tools for the task at hand within resources available to students.

COURSEWORK

COURSE GRADE

Class Activities	15% of class grade
Homework	25% of class grade
Exams (2 exams, 20% each)	40% of class grade
Final	20% of class grade

Class Grade by Percentage	90 – 100	A	60 – 69	D
	80 – 89	B	0 – 59	F
	70 – 79	C		

Class Activities: It is very important to come to each class session as we will be covering new material every day and you do not want to fall behind. We will be using polling software so the class can participate, and I can assess your progress. The website/application that we will use is Socrative. The easiest way to access Socrative is by downloading the student version of the app on your phone. It can also be accessed using any device with web access at Socrative.com.

During class we will have interactive examples/surveys, for each class that you participate in the surveys you will get one point (regardless of a right/wrong answer).

Homework: Homework is done online using the WileyPlus.com webpage. This service must be purchased for an additional cost. The code can often be purchased with the text book or simply online (the web access comes with an e-book version). Assignments will be assigned for each section we cover and will be due at midnight following the next class session (either MWF). The **course** code (different than the **access** code you buy) for our class is **???**.

You will also be assigned activities to learn how to use GeoGebra to develop a basic understanding of the graphing utility and solve various example problems.

Exams: There will be **2 exams** and **1 final** (see the schedule at the end of the syllabus for dates). All work must be shown for full credit. The tests are closed book and no notes may be used. The tests must be completed in pencil (no pens). A scientific calculator (only) may be used during tests. Rescheduling of test may occur (at my discretion). Notification in person at a previous date is necessary. Missing a test without prior rescheduling will result in a zero score for that test.

POLICIES:

University Policies: Please read "General Regulations and Procedures" in the CSUSB Bulletin of Courses for the university's policies on course withdrawal (48-50), cheating and plagiarism (54-55).

Diversity and Inclusion: We affirm and are committed to the value of all kinds of differences among students, faculty and staff. Inclusivity that is broad and deep makes us a healthier and more productive organization and builds a culture that fosters engagement and diverse perspectives.

We believe in, affirm, and are committed to the equal value and dignity of all people. Fairness and equity are more than equality. We actively seek to eliminate barriers for those who are disadvantaged and disempowered so they may participate fully in university life.

Accessibility: If you are in need of an accommodation for a disability in order to participate in this class, please see the instructor and contact Services to Students with Disabilities at (909)537-5238.

If you require assistance in the event of an emergency, you are advised to establish a buddy system with a buddy and an alternate buddy in the class. Individuals with disabilities should prepare for an emergency ahead of time by instructing a classmate and the instructor.

Classroom Behavior: As is the case with the attendance policy, the purpose of the classroom behavior policy is to help reduce disruptions to the classroom environment. Classroom disruptions include, but are not limited to, speaking to anyone other than the instructor during a lecture and interrupting the instructor or a fellow student while that individual is speaking. You need to silence cellular phones and laptops before class begins. NO TEXTING DURING CLASS.

Attendance: Students are responsible for all material covered in class and all announcements made therein. After 3 consecutive absences, a student can be dropped for excessive absences.

Academic Honesty: Academic honesty is expected. Students who use unauthorized material for a test or copy from another's test will receive a zero on that test and could result in removal from the class. Please read "General Regulations and Procedures" in the CSUSB Bulletin of Courses, cheating and plagiarism (pages 54-55)

Academic Support: Free tutoring is available in the Math Gym(JB-391) and the Learning Center(UH-351)

Emergency Procedures: Please refer to the Office of Emergency Management and Business Continuity for information regarding emergencies and safety.

Course Schedule by Section (This is a tentative schedule and I reserve the right to make alternations to the schedule due to class time constraints or other issues).

Math 1601	Coverage
Week 1	2.1, 2.2
Week 2	2.3, 2.4
Week 3	2.5, 3.1
Week 4	3.2, 3.3
Week 5	3.4, 3.5
Week 6	Review, Exam 1
Week 7	4.1, 4.2
Week 8	4.3, 4.4
Week 9	4.5, 5.1
Week 10	5.2, 5.3
Week 11	Review, Exam 2
Week 12	5.4, 5.5
Week 13	5.6, 6.1
Week 14	6.2, 6.3
Week 15	6.6, 6.7
FINALS	Final Exam